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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,534	04/08/2004	Thomas Gennett	S-103,695	3887

31970 7590 10/06/2006

UNITED STATES DEPARTMENT OF ENERGY
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WASHINGTON, DC 20585-0162

EXAMINER

LE, HOA T

ART UNIT PAPER NUMBER

1773

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/828,534

Applicant(s)

GENNETT ET AL

Examiner

H. T. Le

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date April 2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to because of the following informalities: "nanostructerd" is a misspelled word. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claims 11-13 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11-13 are confusing because a process step is introduced as an additional process step but it is not preceded by a process recitation.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-22 are rejected under 35 U.S.C. 103(a) as obvious over the Baughman patent (US 6,555,945) in view of the Landi et al article ("Single Wall Carbon Nanotube-Nafion Composite Actuators").*

* Copies of these references have been provided by Applicant.

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Claims 1 and 2: The Baughman patent teaches an actuator comprising an electrolyte, at least two electro-conducting electrodes separated by the electrolyte, and at least one electrode undergoing a response that provides the actuator output upon charge injection responsive to application of an electrical voltage between said two electro-conducting electrodes. See Baughman, claim 1. Baughman suggests that the electrodes be a carbon nanotube. The Landi et al article teaches a carbon nanotube-polymer composite that would provide most efficient and direct conversion of electrical energy to mechanical energy (see Landi, page 1329, left column, last paragraph). Therefore, one having ordinary skill in the art would have found it obvious to utilize the composite taught by Landi in place of the in place of the carbon-nanotube electrodes for the actuator taught by Baughman to ensure an efficient and direct conversion of energies.

Claim 3: See Landi, abstract and page 1329, right column, last paragraph, lines 1-6.

Claims 4-7 and 10-13: See Landi, page 1329, right column, last paragraph.

Claims 8-9: Landi teaches that the polymer for the composite is Nafion which is a perfluorinated ionomer (Landi, page 1329, left column, first paragraph, lines 7-9).

Claim 14: See Landi, page 1331, left column, second paragraph.

Claim 15: See Baughman, paragraph bridging columns 17 and 18. Also see Landi, page 1331, left column, lines 10-12.

Claim 16: See Landi, page 1329, right column, last paragraph.

Claim 17: See Landi, page 1329, right column, last two lines.

Claim 18: See Landi, page 1331, left column, last 8 lines.

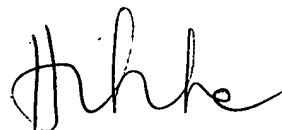
Claim 19: See Landi, page 1329, left column, first paragraph, lines 10-12.

Claims 20-22: See Baughman, claims 74-77.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



H. T. Le
Primary Examiner
Art Unit 1773

September 4, 2006

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